EDUCATION WEEK
SPOTLIGHT

On Differentiated Instruction

Editor's Note: With student diversity growing dramatically and schools facing mounting pressure to boost achievement, many teachers are looking for ways to attend to students' unique learning needs. This Spotlight focuses on how teachers are using differentiated instruction to give students individualized support.

CONTENTS:

NOW FEATURING INTERACTIVE HYPERLINKS Just click on your story and go.

Published February 3, 2010, in Education Week Digital Directions

THE PERSONAL APPROACH

By Kathleen Kennedy Manzo

Digital tools for defining and targeting students' strengths and weaknesses could help build a kind of individualized education plan for every student.

Teachers have always known that a typical class of two dozen or more students can include vastly different skill levels and learning styles. But meeting those varied academic needs with a defined curriculum, time limitations, and traditional instructional tools can be daunting for even the most skilled instructor.

Cover photo illustration_Christopher Powers/Vanessa Solis/Gina Tomko_Digital Directions

Creating a Custom Playlist for Learning

Technology experts recommend teachers utilize a variety of tools and activities to address individual student learning needs:

Class lessons: Traditional lessons for the whole class help introduce a lesson or reteach material as needed.

Assessments: Teachers conduct regular formative assessments, using some quick digital applications and analytic tools, to determine students' skills and academic needs.

Skill-building games: Computer-based games that focus on developing specific skills like vocabulary or multiplication facts.

Some of the latest technology tools for the classroom, however, promise to ease the challenges of differentiating instruction more creatively and effectively, ed-tech experts say, even in an era of high-stakes federal and state testing mandates. New applications for defining and targeting students' academic strengths and weaknesses can help teachers create a personal playlist of lessons, tools, and activities that deliver content in ways that align with individual needs and optimal learning methods.

For educators who struggle to integrate technology into their daily routines and strategies, the notion of a kind of individualized education plan for every student is more pipe dream than prospect. Yet the most optimistic promoters of digital learning say the vision of a tech-immersed classroom for today's students—one that offers a flexible and dynamic working environment with a range of computer-based and face-to-face learning options customized for each student—is not far off.

Several examples of such customization have recently emerged across the country, and are garnering widespread interest and some encouraging results.

"Those examples are a crude picture of a future scenario, where there's a student playlist of learning experiences, some of which happen in something that looks like a classroom, some with a computer, and some at a community resource, like a library, museum, college, or workplace," says Tom Vander Ark, a former executive director of education for the Seattle-based Bill & Melinda Gates Foundation who has advocated for years that schools should take a more individualized approach to learning. He is now a partner in Vander Ark/Ratcliff, an education venture-capital firm. "Their day could look like an interesting variety of activities, driven by their learning needs, not by the school's limitations."

'Feedback to Children'

Vander Ark says that supplemental-service providers, like private tutoring companies or after-school programs, have taken the lead in offering tailored instruction. The ways those providers use assessment tools to gather and process data and then suggest a roster of activities for each student could pave the way for similar approaches within the school day, he says.

He points to one widely publicized model: New York City's School of One.

The pilot program at Dr. Sun Yat Sen Middle School in Chinatown provided math lessons that were customized every day to meet the individual needs, and progress, of the 80 incoming 7th graders who volunteered to attend the five-week session this past summer. The School of One combined face-to-face instruction, software-based activities, and online lessons designed to move each new 7th grader through a defined set of math benchmarks at his or her own pace.

As students entered school each morning, they could view their schedules for the day on a computer monitor—similar to the arrival-and-departure monitors at airports—and proceed to the assigned locations. A student's schedule could include traditional lessons from a certified teacher, small-group work, virtual learning, or specific computer-based activities, most of them offered in converted space in the school library.

After each half-day of instruction, teachers entered data on students' progress and instructional needs into a computer program that recommended the next day's tasks.

Preliminary data showed significant student progress toward mastering the skills targeted in the program, officials say. The district is continuing to track participants' progress.

The school—named one of the 50 best inventions of 2009 by *Time* magazine—expanded in the fall to three middle schools in the city as an after-school program, and is set to guide the school-day math course at one of them this spring.

"When we ask ourselves how much instruction during the course of a typical school day does each student get exactly on the skill they're working on, and in the amount that is right for them, the answer is very little," says Joel Rose, a former teacher who has been instrumental in the development and expansion of the School of One.

"By leveraging technology to play a role in the delivery of instruction," he says, "we can help to complement what live teachers do."

The San Diego Unified School District is betting that the bulk of a recent $2 billion bond measure for technologies designed to transform teaching and learning through a more personalized approach will yield academic improvements.

The five-year plan for the 135,000-student district started this school year in 1,300 math classrooms. The students, in grades 3 and 6 and in high school, were issued netbook computers, and teachers were required to complete 39 hours of training on instructional strategies using technology. Classrooms throughout the district were also equipped with a variety of interactive

technology tools.

After introducing content, teachers can immediately test students using remote devices attached to their netbooks. Students are then assigned to appropriate practice activities or more in-depth lessons.

"The wait time for getting feedback to children is sliced significantly. This is about the speed of learning and the depth of learning," says Sarah Sullivan, the principal of San Diego's Pershing Middle School. "This is the first time I've seen the promise of technology appearing to be paying the dividends we want."

San Diego plans to expand the program next year to other grades and into other subject areas.

Making the Transition

Experts caution, however, that instituting such large-scale change is not simply a matter of putting new tools in place. As in San Diego, most teachers will need extensive professional development to use digital tools and learn the best ways of teaching with technology.

"In many ways, the challenge we face with technology is similar to the challenge we face with data," says Stephanie Hirsch, the executive director of the Dallas-based National Staff Development Council. "We have more and more of both with little support to help educators know how to use it ... to advance their effectiveness and student success."

A number of teachers have found their own ways to harness some of technology's potential to get a closer gauge of their students' work, and to provide a range of options for them to consume required content and demonstrate knowledge.

For several years, Shelly Blake-Plock has asked students in his Latin, English, and art history classes to summarize what they've learned from class and document their progress on assignments in daily blog entries. The students at The John Carroll School, a Roman Catholic secondary school in Bel Air, Md., can post Web links they used in their research, photos and drawings, or short videos that show their work.

Blake-Plock, who writes the popular Teach Paperless blog and has a large following among educators on social-networking sites, says the entries are a continuous source of formative data that he can use to evaluate how students are doing.

If he observes a lack of basic understanding or language skill in some students' work, he says, he can suggest online resources and activities to get them on track. When students reveal their personal interests—such as one student's passion for painting and another's talent for music—he can craft assignments that allow them to explore the content through those areas.

"Before I went paperless and used the blogs to get information from them, I would only see students' work if they wrote an essay or turned in a quiz or test," Blake-Plock says. "Now I'm seeing what they're working on all the time, ... and I'm finding it's a lot easier for me to tell if a student is having problems early on."

'Lack of Innovation'

The advantages for students are potentially more compelling, given the widespread enthusiasm among young people for using technology to create and consume media, ed-tech experts say.

"We have this generation of students that yearns to customize everything they come into contact with," says Steve Johnson, a technology facilitator at J.N. Fries Middle School in Concord, N.C. His book *Engaging All Learners With 21st Century Tools* is due out from Maupin House Publishing this coming summer.

The educational technology market is slowly responding with the kinds of products that can help teachers track and target their students' learning needs.

Wireless Generation Inc., a New York City-based technology company, created its Burst Reading program in response to teachers' comments about the need to vary basic literacy lessons for the many students who did not fit the developmental patterns assumed by lockstep reading lessons.

The company, which helped build the technology applications for the School of One, designed an assessment schedule for K-3 reading schedules that gives feedback and recommends lessons for small groups of similarly skilled students every 10 days. Although the Burst program suggests only face-to-face lessons for students, its underlying assessment relies on sophisticated digital tools for gathering and analyzing data from individual students.

"It's this model of deeply analyzing the data in a way that no human teacher would have time to do, and mapping lessons to kids' abilities, that's fundamental to what education is going to look like in the future," predicts Wireless Generation's chief executive officer, Larry Berger. *(Berger serves on the board of Editorial Projects in Education, the nonprofit corporation that publishes Education Week Digital Directions.)*

The company is working on similar products for middle school reading and elementary math.

At the same time, traditional textbook publishers are starting to adapt their products for greater personalization as well. McGraw-Hill Education, for example, has developed the K-6 CINCH math program for use on interactive whiteboards that includes differentiation options.

The slow pace of development of customizable content and tools is frustrating, though, to some in the field, particularly in light of the widespread adoption of such strategies for training in the U.S. military, or their entrance into the mainstream in public schooling in other developed countries, Vander Ark says.

"This is not science fiction," he says. "None of the technology we're talking about is really advanced, ... but the fact that it doesn't exist yet on a large scale in education is just a reflection of a lack of innovation in that sector."

Group projects: Students collaborate on assignments using technology and traditional research and presentation tools.

Tutoring: One-on-one or small-group tutoring sessions, on-site or virtually, aid students who are struggling academically.

Online courses: Virtual learning could give students access to credit-recovery or accelerated courses, as well as enrichment and intervention activities.

Student Diversity

NEW TEACHERS LOOK FOR DIFFERENTIATION HELP

Many new teachers need help adjusting to the growing diversity of today's public schools, according to a survey report from the National Comprehensive Center for Teacher Quality and Public Agenda.

Most first-year educators feel well prepared in areas like direct instruction and classroom management, the report found, but say they were ill-equipped to deal with the ethnic and racial diversity and special learning needs of children in their classrooms.

Nor is it a matter of not having had any training in such areas. The report, based on interviews with 641 first-year teachers, found that although 76 percent had received instruction in teaching ethnically diverse students, only 39 percent said that the training significantly helped them in the classroom. Findings were similar for teaching special-needs children. Nearly 82 percent of the new teachers were taught to work with children with special-needs, but only 47 percent said the training helped "a lot."

 And while ethnic diversity is often associated with low-income urban schools, new teachers in high-needs schools (47 percent) were actually less likely to complain about inadequate diversity preparation than those (32 percent) in affluent communities.

Given a list of proposals to improve teacher quality, the teachers ranked two items significantly ahead of the others: reducing class sizes and training in adapting instruction to meet the needs of a diverse classroom.
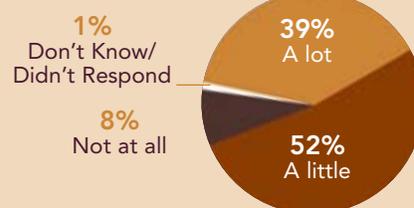
—Rachel Gang

While most teachers say they were trained in teaching an ethnically diverse student body, fewer than 4 in 10 say that their training helps them a lot in the classroom.

**WAS HOW TO TEACH AN ETHNICALLY DIVERSE STUDENT BODY COVERED IN YOUR COURSEWORK?**

- 1% Don't Know/ Didn't Respond
- 23% No
- 76% Yes
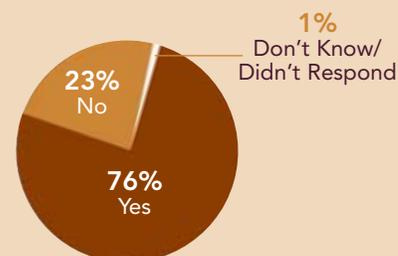
HOW MUCH DID THIS TRAINING HELP?*

- 1% Don't Know/ Didn't Respond
- 39% A lot
- 8% Not at all
- 52% A little

* Asked of those who said it was covered.
SOURCE: National Comprehensive Center for Teacher Quality and Public Agenda

MINORITY-ENROLLMENT GROWTH

The percentage of racial/ethnic minority students in public schools grew from 22 percent in 1972 to 43 percent in 2006, according to the National Center for Education Statistics. The change was primarily due to the increase in the proportion of Hispanic students. This chart shows regional changes in student race/ethnicity from 1986-2006.
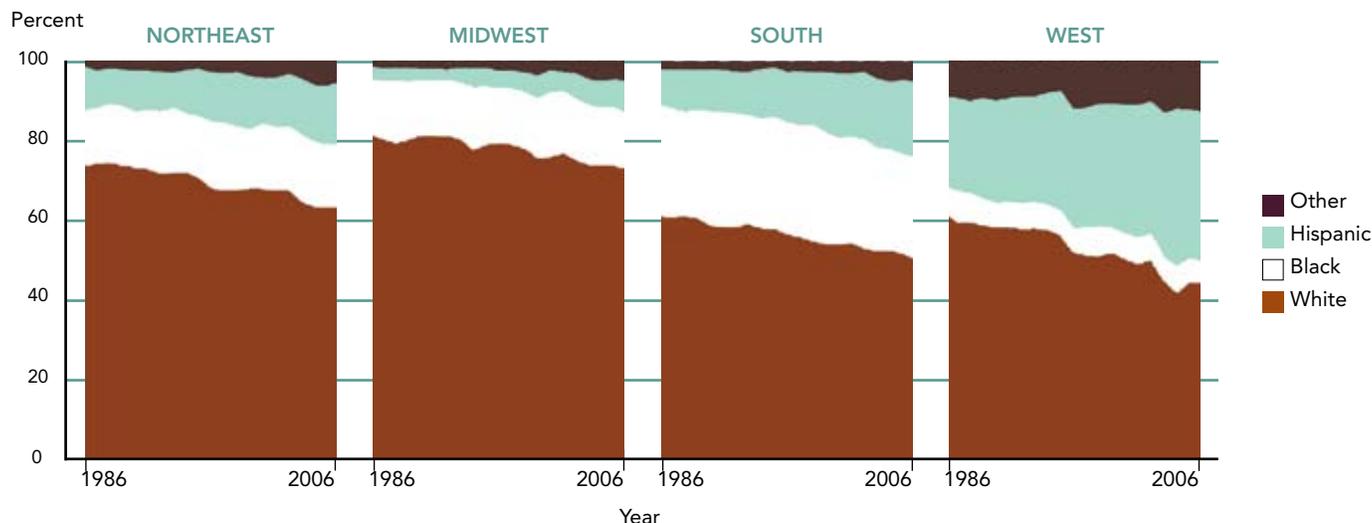
SOURCE: The National Center for Education Statistics.

E-Learning Seeks a Custom Fit

Online coursetaking seen as powerful tool for personalizing education

By Michelle R. Davis

In teacher Liz Sanchez's virtual poetry and literacy classes, she can tell how much time each student spends on a particular lesson, track a student's participation in group discussions, and have struggling students read aloud virtually, without embarrassing them in front of their peers.

Because of those capabilities, Sanchez argues, she can identify a student's needs better than she ever could in a traditional, face-to-face class.

"I'm able to pinpoint and tailor what each student needs to meet the course objective," says Sanchez, who is the site coordinator at Forks High School, in Forks, Wash., for the Virtual High School Global Consortium, based in Maynard, Mass. "I can do that without singling anyone out and embarrassing them."

Giving students a personalized learning experience can be crucial to improving education, and many experts say online courses are especially suited to provide such attention. Virtual schools and classes use everything from online data collection to one-to-one virtual interactions with teachers, and can offer more options for accessing course material than classes in brick-and-mortar schools provide.

In a world where students and adults use online tools to customize musical choices, TV viewing, and a host of other activities, online education options can feel like a natural progression, some advocates say. But even some e-learning supporters say online customization won't have a widespread impact on most students' K-12 experiences until the traditional structure of education changes significantly.

"The potential is definitely there," says Yong Zhao, the director of the Center for Teaching and Technology at Michigan State University, and the author of *Catching Up or Leading the Way: American Education in the Age of Globalization*. "We need a reorganization and rethinking on a system level."

Speed Up or Slow Down

To be sure, students learn best in different ways. Some absorb knowledge most efficiently by reading texts, while others might have more success watching videos, engaging in hands-on learning, or using a combination of those approaches.

In a traditional classroom with one teacher and 30 students, "it's very hard for that teacher to personalize instruction for each student using a single textbook and a lecture style of teaching," says Susan D. Patrick, the president and chief executive officer of the International Association for K-12 Online Learning, or iNACOL, based in Vienna, Va. "With online learning, you can allow for that personalization to happen both in the in-

> **"**
> *I'm able to pinpoint and tailor what each student needs to meet the [online] course objective. I can do that without singling anyone out or embarrassing them."*
>
> —**Liz Sanchez**, Teacher
> **Forks High School, Forks, Wash.**

structional design of the course … but also in the ability of the teacher to provide extra support when a student is struggling, or accelerate one who is ahead."

Apex Learning, an online-course provider based in Seattle, has three versions of many of its core courses, says Cheryl Vedoe, the company's president and chief executive officer. For example, a 9th grade English course is available in a version targeted at most students, as well as an accelerated honors version, and one called "literacy advantage" for students reading below grade level.

Within each of those courses are multiple ways to access the content, Vedoe says. Some students may click on audio and visual material provided with the text, but since doing so isn't required, others may bypass those features. Students may feel more comfort-

able communicating with their teacher through a wiki, through e-mail, by instant messaging, or by telephone. All those means of getting in touch are options with Apex online courses, Vedoe says.

In addition, online teachers have more tools at their fingertips to use extra materials from the Internet to either feed a student's enthusiasm for a topic or reinforce material, says Cathy Cheely, the director of Virtual Virginia, a state-led online education program for middle and high school students.

"The nature of the delivery of these courses allows that more easily," Cheely says. "The world of the Web and those resources can be brought into play quickly, especially since the core content of the course is already there."

'The Individual Is Paramount'

Proponents of online courses believe virtual teachers can get a faster feel for a student's needs, says Patrick. Every click of the mouse that students make, how long they work on a particular section, and how much time they spend on discussion boards are all automatically recorded. More advanced systems can track students' past performance and compare those records with current performance, Patrick says, and provide a plethora of built-in assessments.

Though it may seem counterintuitive, Cheely believes that online teachers spend more time interacting on an individual level with their students than teachers in traditional classrooms. "When our teachers come on board, we tell them they need to be prepared for the intensity of the job," she says. "It's much more student-centered than what a classroom teacher might experience."

Online, a teacher often works with one student at a time, Cheely explains. Communication, whether through Web conferencing, e-mail, or instant messages, is also often one-to-one.

"Some people are startled by that," Cheely says. "They think of online education as being remote or independent, but … the teacher's role of working with the individual is paramount."

Cindy Knoblauch, an English teacher with the Florida Virtual School, the largest state-sponsored online school in the country, says she was initially surprised by the amount

of individual interaction she had with her online students.

"Every virtual school teacher will tell you a student is going to be much more frank and forthcoming when they're just talking to you," she says. "You can find where the gaps are, which is much more difficult to do in a group setting."

Zhao says online education can also give students the ability to customize their own experiences, providing access to teachers, outside experts, and subjects they'd never be able to have at their own schools. "If a student wants to study Chinese traditional painting in school, they can do that online," he says.

The Case for Face-to-Face

But Carol Ann Tomlinson, an education professor at the University of Virginia and an expert in differentiated instruction, counters that all good teachers are able to provide customized learning in a face-to-face classroom as well as or better than virtual teachers can.

Hallmarks of a successful teacher who is able to customize instruction in a traditional setting are similar to those in the online world, she says. For example, a teacher should have clear expectations about what students are to learn, but flexibility in how to get there. Constant assessment—"not as a way to fill in the gradebook," Tomlinson says, but to see where a student stands—is critical.

Plus, she points out, teachers who customize learning effectively in a regular classroom do provide a variety of ways to give students access to material, besides just lecturing.

"The job of a teacher is to make sure kids learn," Tomlinson says. "Teachers want to do what works for kids. They see the differences in students and want to figure out how to reach them."

Some aspects of online education also make it difficult to gauge a student's progress and his or her understanding of the material, says Sanchez of Forks High School in Washington state, who points to the subtle cues offered by face-to-face interaction.

"Sometimes, students will say they understand, but when I look at their faces I can see they don't," she says. "I can see that light that comes on in somebody's eyes, that dawn of understanding."

And technology can sometimes be a barrier to effective communication between teachers and their students, who may have difficulty navigating an online course or using the technology.

Even so, says Sanchez, programs such as the Virtual High School mitigate those problems, both with video-conferencing where teachers and students can see each other on screen, and by requiring students taking online courses to have an on-site facilitator to help with technical problems.

"I'm not certified to teach DNA technology, but I know how to be an online student," Sanchez remarks. "I can say, 'Here's the problem, and this is how you fix it.'"

The real issue, says Zhao of Michigan State University, is not whether courses are delivered online or face to face, but whether the delivery is customized. He envisions a future in which every student would have an individualized education program, or IEP, like the plans now required for students with disabilities. Online courses, he believes, can play a central role in making that happen.

"The one-size-fits-all, mass-production, mass-market system is not serving our children well," he argues. "Personalized learning should be the goal."

Published May 15, 2009, in Education Week

CHAT HIGHLIGHTS

Exploring Differentiated Instruction

With student diversity growing dramatically and schools facing mounting pressure to boost achievement, differentiated instruction—the craft of accommodating and building on students' individual learning needs—has gained increased attention in recent years. But it can be difficult to implement effectively, and interpretations of what it means for instruction can vary. In this chat, Carol Ann Tomlinson, a leading authority on differentiated instruction, discussed the core principles of the practice and addressed questions on using it in the classroom and as a strategy for whole-school improvement.

CAROL ANN TOMLINSON *is the William Clay Parrish Jr. professor in education and chair of the Department of Educational Leadership, Foundations, and Policy at the University of Virginia. She is the author of many books, including* The Differentiated Classroom: Responding to the Needs of All Learners.

What first steps do you recommend for getting teachers involved in differentiated instruction?

I think a good first step is to think about the logic of differentiation in your own class. Where do you want students to end up at the end of a unit (or at the end of today)? How can you use formative assessment to monitor where they are relative to those goals? And once you have a sense of where students are, ask yourself how you can adapt the classroom to help move small groups of students and individuals as effectively as possible to those goals.

You can start anywhere. You might try to deliver information in more ways than usual, or give students two options for exploring an idea, or develop assessments that provide different ways for students to show what they've learned. Teaching in small groups is a great first step—and really powerful.

Read some about differentiation, too—so you have a sense as you grow of what solid differentiation looks like. And find some colleagues who will learn along with you.

My teachers struggle with the idea of how to plan for differentiation on a daily basis. They feel overwhelmed at the prospect of attending to all learners' needs each day. What advice do you have on first steps teachers can take in incorporating differentiation into their lesson/unit planning?

I'd think about looking at needs of small groups of students—vs. trying to address the needs of 30 separate students—in the beginning. Are there students who are struggling with the content, or students who are ahead, or five students who may be stuck on one skill? Planning for two tasks or two small groups is way easier than planning 30 lesson plans. Differentiation is not the same as individualization in that it doesn't suggest IEPs for each student. It suggests there are patterns of need in a classroom and that if we look for those patterns, we can develop approaches that open up the classroom a bit.

It's also probably good in the beginning for teachers to concentrate on one subject or on two or three strategies. Trying to do everything all at once is likely to result in more frustration than success.

How is differentiating instruction different from the old ways of grouping for ability? How can we avoid the stigma of being in the "low" group? If we are changing groups all the time, how do we keep track of that?

I think it's critical for an administrator to have a clear vision for why differentia-

tion matters, who it will benefit, and what it should look like in the classroom. It's important to make those things clear and consistently visible to teachers—and to have discussions as a faculty that allow folks to share varied perspectives.

It's also critically important, however, to make sure teachers have goals they need to reach in their classrooms. How teachers move toward differentiation will vary based on the teacher—but that they are making progress should be a non-negotiable.

Give grade levels or departments responsibility for supporting one another's growth. Visit teachers' classrooms. Set goals with them. Provide professional development that's rooted in their classrooms. In other words, establish expectations and provide support that enables them to meet the expectations.

See if you can establish teacher planning teams that end with teachers implementing some differentiation with others on the team observing and learning from what they do.

It's important to have a vision, a plan, support, momentum, etc.—all moving together.

Flexible grouping is very important in differentiation. Students respond and learn differently in different contexts—and come to see themselves and one another differently in different contexts.

Flexible grouping says we will certainly use some groups based on similar readiness (needs based on a specific goal—not ability-based groups)—but should also use mixed readiness groups, interest-based groups of both similar and varied interests, similar and mixed learning profile groups, random groups, student choice groups, and whole class groups.

Kids know whether they are strong or weak in a particular area at a given time. We look foolish if we don't attend to that. However, if that's the only kind of grouping we use, we pigeon-hole kids and end up with bluebirds and buzzards.

Flexible grouping has students change

groups often enough that they are never quite sure what's coming next—and they don't feel identified with any one group of peers, one part of the classroom, etc.

Can you talk about how you see differentiated assessment fitting in with differentiated instruction?

The aim of assessment is to provide students with an opportunity to demonstrate what they know, understand, and can do as the result of a segment of study. Some students can create an annotated diagram of a scientific process, but cannot write an essay about it. Differentiated assessment provides students with more than one way to demonstrate proficiency. The goals of the assessment (what the student should know, understand, do) doesn't change—but formats, support systems, time, etc. can vary with the goal of maximizing the opportunity for each student to show what he/she has learned.

I think the biggest obstacle that teachers I mentor have with differentiated instruction is with the concept of fairness. It is difficult for them to see how relative fairness is with respect to giving grades and assessing students in general.

Differentiation would suggest that fairness happens not when we treat everyone as though they were the same, but rather that we are fair when we help each student get the support necessary to succeed.

Your question suggests that fairness and grades get tangled together.

Experts in grading (who, by the way, don't think about differentiation—it's not their area) tell us several things about what would constitute best practice grading. Most of those really support a differentiated classroom (things like not over-grading work, grading later rather than earlier in a grading cycle, grading against criteria rather than against one another, eliminating "grade fog"—practices that make grades less clear, for example taking off points because a student doesn't put her name on the top right corner of the paper, etc.)

They also tell us that we should communicate three separate grades to stakeholders—NOT average them, but report them separately. Those three are:

1. A performance grade—Given the criteria, where is this student?

2. A grade for habits of mind and work—How do this student's work habits reflect those of successful people?

3. A grade for growth—Given where the student began, where is he now?

We can do that through comments, conferences, revised report cards, etc.

Such a system does not suggest we grade a student harder because they are "smarter" or easier because they are struggling. It suggests that the criteria for the performance grade stay the same. In addition, however, the other two elements help kids and parents understand better what leads to success, and it also reports growth (or lack of it).

The elements of best practice grading are exactly the ones we'd want to use to be fair to students, as I see it.

COMMENTARY

DIFFERENTIATE,
Don't Standardize

By Nel Noddings

What do advocates of national standards expect to accomplish? Unless the ends sought are both significantly important and feasible, we should turn our attention to problems that are truly pressing, such as reducing the number of high school dropouts and curbing youth violence.

It is unlikely that national standards will have a substantial effect on academic achievement. To begin with, in a broad sense, we have long had a national curriculum for the college-bound, one that has varied only in details across the country. This standard curriculum has been established and reinforced by powerful textbook publishers and by colleges and universities; it has been backed by the SAT and ACT college-entrance exams.

Standardization has also been supported by the growth in Advanced Placement courses. But increased participation in AP courses has not produced a greater proportion of students passing the AP tests. Failure rates have risen. Simply stating what students must know and be able to do is not enough to ensure the desired outcomes. When standardization is taken to mean universalization, the result may well be lower achievement for many students.

We have been halfway down this road before. Remember the behavioral-objectives movement? Statements of those objectives contained both content and performance standards. Teachers were to state exactly what students would do as a result of instruction and to what standard—for example, students were to add fractions with denominators up to 12 and get at least seven out of 10 items right on a test. Saying it clearly did not make it happen.

The behavioral-objectives movement failed. "Competencies" replaced behavioral objectives, and battalions of educators who should have known better rolled up their sleeves and started to rewrite curricula in terms of competencies. Like its predecessor, the competencies movement was tightly tied to a system of assessment. In one district where I served briefly as a consultant, the first question asked by the writing committee was what rate of failure would be tolerated by the community. That question lurks just below the surface of the current push for national standards. It is hard to shake off the suspicion that, in order to show the world how advanced our standards are, some kids (perhaps many) will fail. If they do not, the standards will be considered too low and will be raised. Inevitably, some students will fail.

Advocates of national standards object that it is not their intention for children to fail. All kids will have better opportunities; the object is to leave no child behind. How will this be done? By generously insisting that all kids, regardless of interests or aptitudes, will take the standard academic subjects and be prepared for college. Some even argue that preparation for college and preparation for work should be identical. Pointing out the foolishness of this contention is material for another essay. Here, I want to concentrate on what our efforts in this direction have produced so far.

Students all over the country are now forced to take algebra and geometry. The result has been a proliferation of pseudo-courses in these subjects. I've observed these classes, and watched students plod through meaningless exercises manipulating meaningless symbols. As a former high school math teacher, this makes me angry. We could be teaching these kids some mathematics that would be useful in their present and future lives. Instead, we are engaged in pedagogical fraud. Many students who graduate from high school with "algebra" and "geometry" on their transcripts are disheartened to learn that they must start their college work with pre-algebra.

It is politically incorrect today to suggest that some kids have neither the interest nor aptitude for academic mathematics. Nevertheless, it is true. When I taught high school math (everything from general math to Advanced Placement calculus), I was continually astonished at the range of achievement that appeared in every course. It was wonderful to work with kids who were eager to learn more and more. But it was also gratifying to help less interested students find material connected to their own purposes, and it was humbling to learn something about the impressive range of human talents. There are many intelligent, industrious, morally decent, creative people who dislike academic math and really don't need it.

We do not need to standardize. We need to differentiate—to offer a greater variety of courses—and we should work on the quality of these courses. They should not be shabby, dead-end courses for those thought to be incapable of the long-favored academic courses. Rather, they should represent a genuine

> We do not need to standardize. We need to differentiate—to offer a greater variety of courses—and we should work on the quality of these courses.

democratic respect for all the interests and talents required in the contemporary work world. On the practical side, the U.S. Bureau of Labor Statistics informs us that most of the job openings in the next decade will be in occupations that do not require a college education; reasonably, then, we should consider how best to provide for students whose interests are not primarily academic.

Vocational education in the United States has had a mixed history. Its commercial programs (office and secretarial courses) were quite successful; its industrial programs less so. At least three reasons for their lack of success should be examined. First, many (by no means all) of the courses in vocational programs were poorly planned and taught; this was especially true of the general education courses taught as part of the larger program. The attitude often expressed was that these students could not do "real" academic work. Second, students were assigned to programs, often on the basis of extraneous factors such as race. Third, there was general acceptance of a hierarchy of programs: academic at the top, commercial in the middle, and vocational (shop) at the bottom. Under such conditions, it was hard for any youngster to choose a vocational program proudly. One landed in such a program not by choice, but by default.

If we put our minds to it, the first and second conditions can be remedied. Vocational courses can be well designed and creatively taught, and students—with appropriate guidance—should be allowed to choose the program of study that best fits their interests. Choice should be allowed across all programs. Students should be neither assigned to nor denied access to any program. Such choice is also a powerful motivator. Lagging students can be spurred on by a reminder that they chose a college-preparatory or vocational program.

The third condition—the widely accepted hierarchy of programs—is harder to overcome. Too many Americans judge courses by their titles; we apply a criterion that might be labeled "rigorous by title." "Algebra" is, on this criterion, more rigorous than "shop," "office machines," "cooking," or even "music." Thus it seems more acceptable for a student to take a shoddy course in algebra than a challenging course in automotive repair. Educators should read Mike Rose's *The Mind at Work* and Matthew Crawford's *Shop Class as Soulcraft*.

But we continue to insist that, like it or not, all children should be prepared for college so that they will have a chance at a more affluent life. The purpose of education

> **"** I think we must— politely but persistently— question the motives behind the push for standardization."

NEL NODDINGS
Lee L. Jacks Professor of Education Emerita at Stanford University

has been reduced to making money. What about liking one's work? What about feeling useful and competent? What about living a full life in family, friendship, and community?

If it is untrue that all children should go to college, and if it is true that the establishment of national standards is likely to increase the high school dropout rate, then we should reject the idea of national standards and work energetically to provide a variety of first-class programs for all our students. I think we must— politely but persistently— question the motives behind the push for standardization. Might money be involved? A seemingly uniform academic program is much cheaper than up-to-date vocational programs. Vocational education is expensive, requiring smaller classes, larger spaces, and sophisticated machinery. Can we afford it?

Perhaps we can. If we redirect all the money now wasted on standardization and testing to first-class programs for all our students, we might keep kids in school and give them hope for the future.

Nel Noddings is the Lee L. Jacks Professor of Education Emerita at Stanford University. She is a past president of the National Academy of Education, the Philosophy of Education Society, and the John Dewey Society.

INTERVIEW

Making a Difference

Carol Ann Tomlinson explains how differentiated instruction works and why we need it now.

By Anthony Rebora

Differentiated instruction—the theory that teachers should work to accomodate and build on students' diverse learning needs—is not new. But it's unlikely that anyone has done more to systematize it and explicate its classroom applications than University of Virginia education professor Carol Ann Tomlinson.

A former elementary school teacher of 21 years (and Virginia Teacher of the Year in 1974), Carol Ann Tomlinson has written more than 200 articles, chapters, and books, including *The Differentiated Classroom: Responding to the Needs of All Learners* and *Fulfilling the Promise of the Differentiated Classroom: Strategies and Tools for Responsive Teaching.* Characterized by a rigorous professionalism and a strong underlying belief in both teachers' and students' potential, her work has given many educators both practical and philosophical frameworks for modifying instruction to meet the individual needs of all students.

Anthony Rebora, editorial director of the Teacher Professional Development Sourcebook, recently talked to Tomlinson about the theory of differentiated instruction and its use in schools today.

Q **Differentiated instruction is a term that is interpreted in a lot of different ways. How do you define it, and why is it important for teachers today?**

I define it as a teacher really trying to address students' particular readiness needs, their particular interests, and their preferred ways of learning. Of course, these efforts must be rooted in sound classroom practice—it's not just a matter of trying anything. There are key principles of differentiated instruction that we know to be best practices and that support everything we do in the classroom. But at its core, differentiated instruction means addressing ways in which students vary as learners.

The reason I think differentiated instruction is important is that students do vary in so many ways, and our student populations are becoming more academically diverse. They always have been, but they're becoming more so. And the chances are pretty good that this will continue throughout our lifetimes.

As I see it, there are three ways to deal with students' differences. One is to ignore them. We've tried that for years, and we just don't have any evidence that pretending that all kids are alike and teaching them the same things in the same way over the same time period is effective.

The second way is to separate kids out— trying to figure out who's smart and who's not. When we do that, we end up getting the idea that most teachers are supposed to work with "normal" kids, and the kids who are somehow "broken"—if you don't speak English too well, if you have a learning disability, if you're too smart—are put someplace else. But we're finding that this separation process isn't helping in terms of achievement, particularly for the "broken" kids. And there's the problem that the broken kids are often poor and minority, while the kids we see as being in good shape tend to be white and more affluent. So, the division between the haves and the have-nots is being reinforced by schools rather than ameliorated. Finally, sorting kids in this way creates a negative mindset, to use author Carol Dweck's term. We're basically telling kids from the outset they're too different and that they can't do the work—which is pretty detrimental to their outlook.

So that leaves us with the third, unfortunately less common choice—keeping kids together in the context of high-quality curriculum, but attending to their readiness needs, their interests, and their preferred ways of learning. And we have a fairly good body of research to suggest that when you do that the results are pretty impressive. Differentiated instruction assumes a more positive mindset: Let's assume they can all do good work, and let's attend to the ways that they need us to teach them in order to get there.

Q **What are the hallmarks of a well-run differentiated classroom? What are the things you look for when you visit a classroom?**

One of the first things I look for are teacher-student connections. Does this seem to be a teacher who is really paying attention to the kids, who's going out of his or her way to study them and understand what makes them tick? To be effective with differentiation, a teacher really needs to talk with the kids, ask them their opinions on things, sit down with them for a minute or two to see how things are going, and listen to them and find out what they are interested in. All that feeds back into instruction. And teacher-student connections not only help teachers plan what to do with kids, it also provides motivation for differentiation: If I can see kids as real individual human beings, I'm going to be much more invested in helping them learn and grow individually.

Another thing I look for is a sense of community in the classroom. Has the teacher pulled this class together as a team? It's helpful to think of a baseball team: Different players play different positions and fill different roles, but they also work together and support each other in working toward a common goal. In the same way, it's really important for kids to come together and understand and appreciate their differences, and to be willing to help

one another succeed—as opposed to the cut-throat competition that sometimes goes on in schools.

The third thing I look for is the quality of the curriculum being used. You have to differentiate something. And if what you differentiate is boring enough to choke a horse, you've just got different versions of boredom. If you differentiate something that's murky and not clear regarding why anyone's doing it, then you just generate multiple versions of fog. Or if all you're doing—as unfortunately many teachers feel pressured to do today—is teaching a telephone book of facts in preparation for a test, you're not really providing memorable or useful learning. So teachers who are trying to reach out to kids really need to keep asking themselves about the quality of what they are teaching. This is also a mindset issue: If I really think all my kids are capable of learning, then I want to give them the most robust materials, not the watered-down stuff.

Q **So what are the key things a teacher needs to think about when developing a differentiated lesson plan?**

This gets us further into the core principles of differentiated instruction. One of these is what we call "respectful tasks." This means that everybody's work needs to be equally engaging, equally appealing, and equally important. It's very easy to fall into the pattern of giving some kids no-brainer tasks and giving other kids the teacher's pet tasks. What you really want is every student to be focused on the essential knowledge, understanding, and skill. And for every student to have to think to do their work.

Another important principle is that of flexible grouping. This means you don't arbitrarily divide students or automatically group them with kids of the same skill level. You need to systematically move kids among similar readiness groups, varied readiness groups, mixed learning-profile groups, interest groups, mixed interest groups, and student-choice groups. In a sense, the teacher is continually auditioning kids in different settings—and the students get to see how they can contribute in a variety of contexts.

Another key to a good differentiated lesson is "teaching up." We do much better if we start with what we consider to be high-end curriculum and expectations—and then differentiate to provide scaffolding, to lift the kids up. The usual tendency is to start with what we perceive to be grade-level material and then dumb it down for some and raise it up for others. But we don't usually raise it up very much from that starting point, and dumbing down just sets lower expectations for some kids.

Q **You alluded to the fact that teachers are under a great deal of pressure to teach mandated standards and to improve standardized test scores. How does differentiated instruction fit into this context?**

I think it fits in pretty well actually. As I see it, you've got two choices. One is to say, "Look, all I think I can do is cover this list of skills." But even if that's all you think you can do, it's still better to start where the kid is and help him move from that point instead of trying to skip over gaps.

But what we really know from people who work with good quality curriculum is that the stuff we're being asked to teach kids for the tests is part of a bigger picture of something that helps them make sense of the world. To teach that bigger picture is the second choice. Typically, what we're being asked to teach kids are facts and skills, but you can wrap them in understanding. You give kids a sense of how this makes sense in the world, how it all fits together, how it ties in with their lives, and what they can do with it as people. You don't jettison the facts and skills; you just package them in a way that makes them more interesting to learn, more memorable, more transferable, more useful, and retainable.

No one would ask teachers not to teach what they feel they're responsible for. But you can teach those things in ways that are more meaningful and richer. So what I'm talking about is quality curriculum and my sense of it—and I think this is where most curriculum experts are, too—is that quality curriculum is centered on understandings.

Q **I found it interesting that in *The Differentiated Classroom* you say that an effective teacher "must like himself." What do you mean by that?**

When you see purpose in what you do, when you really like what you do, when you get up in the morning ready to make a difference, when you see human beings that are going to be impacted by your work—I think these things enable you to be a fulfilled person. And I think that teachers who really find fulfillment in the classroom feel better about themselves and are more likely to have the courage to reach out to kids and try new things than those who doubt themselves and feel discouraged. And I would guess this is also true of teachers who are more self-efficacious in the first place. You need a certain sense of self-assurance to teach at high levels.

To use differentiated instruction as you discuss it in your books, teachers really have to get to know and understand their students—in terms of their learning styles, interests,

strengths, and weaknesses. It seemed to me that this would be very difficult to do if you have five or six classes a day. How do teachers digest all this?

Let me just clarify that I taught for 21 years, so this isn't just something I thought of at a university and never tried in a classroom. I've done it with 150 kids a year. But it is difficult. Teaching is difficult. So are many other professions.

But getting to know students in this way isn't really as hard as you think. The key thing is to actively get kids to show you who they are and what their needs are. There are a lot of pretty simple techniques to do this. For example, we have a fairly substantial body of evidence that some of us learn better in creative ways, some in practical ways, and some in analytic ways. To start to gauge where your students fall within this schema, you could create three different journal prompts that all ask the same question—but with one coming at it from an out-of-the-box perspective, one bringing in a life-application aspect, and one in a more methodical or analytic way. Then just ask the kids to respond to the prompt that's best for them personally. More generally, you could give students periodic surveys of the class, asking them what they particularly liked and what they found particularly difficult. It's also good practice for a teacher to keep a kind of journal where they jot down things they learn about kids—about they're likes and dislikes, and what they get really excited about—and be able to refer back to it.

Actually, we're hitting on another key principle of differentiation, which is ongoing assessment, meaning that I'm continually checking in on who's where with the knowledge and understanding I'm trying to teach and continuing to track the progress of kids, much the way a hospital would track the blood work or respiration of a patient. There are really a lot of ways to do this, outside of formal quizzes and tests, that aren't tremendously laborious. You start by systematically watching kids, taking good notes, checking work regularly and closely, and asking good questions. It's really as much a predisposition on a teacher's part as anything else.

Q **The growing numbers of English-language-learners in schools pose particular challenges for many teachers. In your books, you talk about the ability of differentiated instructors to build "language bridges" to help these students. Can you explain how that's done?**

You learn a language through speaking, so making sure these kids participate in discussion groups where they can make a

contribution is really very important.

One great way to do this, when possible, is to put a student who is just learning English in the same group as someone who can serve as a kind of bridge—someone who speaks the same native language but is further along in English. This gives the English-language-learner a way to contribute and follow the work.

Another helpful strategy is what we call "front-loading vocabulary." This is when the teacher identifies the half-dozen or so words in a unit that really are central and really give it its meaning. Then you teach this academic vocabulary before the unit begins, so that when the lessons and readings start the kids have something to build on. This is helpful not only with second-language-learners but also with students with learning disabilities or below-level vocabulary skills. It helps tremendously with focus and understanding.

A related technique is the use of word walls—which we tend to associate with younger grade-levels but can work well with older students, too. These are simply places on the classroom walls where you list words and definitions and categorize them in word families and in other ways. This gives kids something to refer to and helps them learn words and derivatives. I know a high school teacher in North Carolina who has her students—many of whom are learning English—"adopt" particular words by creating poster-board presentations on them, complete with definitions, pronunciations, and illustrations. Strategies like these really amount to vocabulary-support systems and can help kids create associations and understandings.

Another tried and true technique is to make audio recordings of reading assignments that kids can listen to while they read. Oftentimes, hearing vocabulary in a new language develops more quickly than their reading vocabulary.

Graphic organizers can also help English-language learners organize and make sense of ideas in the content.

Q **Teachers often say they don't get enough— or any—training or professional development in differentiated instruction. Why do you think that is?**

I think the main reason is that differentiated instruction requires a complex change process for most teachers. It's not something you can show me how to do today and then I can go back and do in my classroom tomorrow. And unfortunately, the professional development models used in most schools aren't conducive to complex, meaningful change or growth. For most schools, a good professional development program is, "Well, shoot, we used two whole staff-development days." But something like differentiated instruction takes a lot more than that. You have to have people in the classrooms with teachers and you have to give teachers opportunities to trouble shoot and work together. And you need a leader who's both approachable and insistent, who commits to the program.

In the book I recently co-authored, called *The Differentiated School*, we actually look at two very different schools—one elementary and one high school—that have moved their entire faculties to differentiated instruction. The one thing that was immediately evident in both schools was that they had leaders who really understood what differentiation meant. And they went about staff development with the understanding that asking teachers to change their practices in this way is a complex thing. Both schools came up with staff-development plans that were sustained and persistent and embedded in the school's culture, with people in charge who never went away. On some level, when you look at those schools, it's almost a no-brainer. Everything they did was entirely sensible—it's just that we almost never do those things systematically and persistently in schools.

Q **Considering the high teacher turnover in many schools and the increasing use of scripted lessons, are you optimistic about the growth of differentiated instruction in schools?**

I think I'm sort of a realistic optimistic. I understand how hard change is, and I understand the complexities of schools and school systems. But there's no doubt that our classrooms are becoming more diverse, and that's going to continue. And whether you call it differentiation or something else, we're going to have to reach out to those kids. Educators get this. New ideas in teaching often disappear from the scene fairly quickly because real change is so hard. But I've been working with differentiated instruction for at least 15 years now, and people are sticking with it. It's even starting to take hold, quite effectively, in some good teacher-prep programs, giving young teachers a strong basis for development.

Now, I don't think this is because people just like the way it sounds. I think it's because we all have these kids, in all their wonderful diversity, right there in front of us every morning—and we have to figure how to help them reach their potential. So, I think my optimism comes from what seems to be a sustained interest on the part of educators in reaching out to diverse student populations and a willingness to pursue change even if it doesn't come in a simple formula.

ASK THE MENTOR

CO-TEACHING
in the Multi-Level Classroom

Mindy Fattig is a nationally recognized educator and co-author of *Co-Teaching in the Differentiated Classroom* with middle school teacher Maureen Tormey Taylor, which was recently published by Jossey-Bass. Fattig is the director of special education for the Del Norte Unified School District in California, an instructor in special education at Humboldt State University, and an education consultant. Her multi-level instructional model, which transformed a middle school, won a California State Model School in Special Education and a National School to Watch for its co-teaching program.

Q Where do I start? I would like to think that two heads are better than one. But, I do not know where to start. This is my first year with a co-teacher. We have 14 students. Differentiation is so hard. So much of what I read is too vague. I think I could benefit by getting ONE specific lesson plan and how it will work in this environment.

Differentiation is a huge topic and can be so overwhelming. Remember, though, that true differentiation is not an individual lesson plan for every student. When I first began trying to differentiate I started with the simple Bloom's Taxonomy questions, and this is where I recommend starting because it is easy to do and yields a great result in student learning. Let me walk you through an example.

Let's say you are studying fairy tales with younger children. Let's use "Three Little Pigs" with the assumption that the students have read another fairy tale, in this case "Hansel and Gretel." The following is a guidepost for creating three leveled questions for the different levels of learners in your class.

Level 1 uses the first two levels of Bloom's Taxonomy (Knowledge and Comprehension). It seeks an answer to a question that can be found directly in a book or story. In this instance, I would ask, what was each house that the pigs built made of? Because the student can open the book and find the answer, I call this first level, "Find it."

Level 2 uses the next two levels of Bloom's (Application and Analysis). In this level, students compare external characters or actions to the character[s] at hand. In this example, students could compare the wisdom of the third pig in "Three Little Pigs" to Hansel and Gretel. Because the answer to this question is not directly in the book, I call this level "Compare it."

Level 3 uses the final two levels of Bloom's (Synthesis and Evaluation). The answer to this question requires the student to get outside the story and consider whether she would make the same or choice as the character. For example,

what would you have done if the wolf came to your house? This level is called "Own it."

Leveled questioning is the easiest place to start. Once the students have written their answers, you can walk around the room quietly and indicate to specific students if you want them to answer additional questions. A couple of cautions: Do not always ask the lowest-level question first or last, but mix them up. You need to guide the students to the appropriate level based on their academic ability; however, never limit the lower-level student to the lower-leveled questions. Once you have mastered the art of leveled questions, you are ready to develop contracts and menus since they, too, are based on leveled questions. Good luck, start slow, and work together.

Q We often hear from teachers, even high-performing teachers, that having low-performing students in their classes pulls down the performance of the whole group. What is the proper response?

Instantly, two thoughts come to mind: low expectations and team building. I have seen low-performing students rise to the occasion and exceed my expectations if I hold it to them and give them support. The concern that I have when I hear a teacher express this is that the expectations are too low. However, if a teacher uses flexible grouping lesson by lesson and does not assume a student has prior knowledge because he is a "higher" student but really assesses and groups based on need sometimes and other times by interest, the students will get what they need.

Use team-building activities where everyone works together to solve a real-life problem using the content from your class. Have the students set goals from themselves both academically and socially each quarter/semester and revisit the goals with the students to see if they reached them and give them support or guidance on how they can reach them. Create a classroom of understanding that we have no low or high kids, but just kids. Kids learn more working together than alone.

Q I do not have a co-teacher, but I have students in my math class ranging from the 3rd grade to Algebra 1 level. I try to differentiate with a common lesson, but the class is getting more and more out of control. They are all angry. The lower level students feel stupid and the advanced ones, who are not challenged, are mad that they are in classes with those of lower ability. I am a SPED teacher and the advanced kids are emotionally disturbed. Not all of the students are SPED in this class though. What shall I do?

You are not alone. Rest assured that the situation that you are trying to teach in is the exact same one that I found myself in about 11 years ago, and it can get better. The first thing that I recommend is to really spend time creating a positive classroom community. Do some multiple intelligences worksheets so the students know what kind of learners they are and are recognized for not all being the same. Build in some math games where they have to work together as a group. One that works well is challenging them to see who can build the highest tower out of tissue paper and Popsicle sticks. Connect it with a math standard that you are working on.

Once you establish a community where the students understand that they each bring different skills and abilities to the table, but that they are working towards a common goal, your classroom will run much smoother. I would look at which lessons you are differentiating because it seems like they haven't been very successful.

I would suggest starting small with the lessons, such as using differentiated exit cards or warm-ups. Level the difficulty of the problems (only three-six problems are needed) so they appropriately challenge each student. Finally, give pre-assessments. Place the students into three groups based on their knowledge of the upcoming unit.

Level 1 does not have any prior knowledge. Level 2 knows some, but not enough of the material. Level 3 has mastered the skills and needs to go on. By breaking into three groups, you only have to come up with three lessons. The students can either work independently on the leveled worksheets or in groups. Leveled homework also works well as long as it remains practice and not new information.

Please remember that as long as the students recognize their own strengths and differences and they know that you recognize those as well, you only need to differentiate a few lessons a week at most.

Q We've dealt with many of the issues you mention with success (management, planning, grading). But, many times the issue of behavior is glossed over when speaking of differentiation. Even if material is leveled correctly, even if lessons are engaging, even when there is a great behavior intervention plan in place, there are still students that are dealing with emotional issues that cause learning to slow or stop...and often end up taking up one teacher's time completely (or cause them to have to leave the room). How have you dealt with this issue in your schools?

Definitely. There are always going to be certain students who have behavior challenges for whatever the reason—medical, emotional, or social. In these situations, you really need to look at it child by child. You mentioned all the factors to look at already and all the things that need to be in place, such as an engaging, appropriate lesson and behavior plan. However, if the behaviors are still occurring, then the function of those behaviors probably has not been correctly identified or there has been little success with the replacement behaviors. A student needs to see his behavior as a choice.

It is not about us enforcing the rules and making the child behave. It is the child's choice. We are merely responding to his choices. If you are constantly dealing with one child over and over at the expense of the other children in the room, you need to look for a new behavior plan and address what the function of that child's behavior is: attention from peers, attention from adults, escape from the situation, or avoidance of work, among others. Once you have isolated the function of the behavior, it is important to document what does and doesn't work. It helps to have a school psychologist involved at this point as well. That said, there have still been times when—regardless of how many times we met and redid the behavior plan—the student still made poor choices in class. The psychologist and I exhausted all resources that we knew of. At that point, when a student chooses to disrupt the learning of others, it is best to send him to another class or a quiet area under supervision with his work.

One strategy that worked well for me with a particularly difficult student who acted out and also refused to talk to me was to seek him out. Every day I went out of my way to find out which way he walked down the hall to class or during recess. I would purposely walk by him and just say, "Hi Todd." I did this every day for two weeks until finally I got a head nod back. Then I said, "Hi Todd. Glad you're at school today." Again, every day for three weeks until I got a "thanks." I continued to seek him out in the hall. I would mention something that he liked, "Hi Todd. I watched a cool skateboarding competition last night," and kept on walking by him. After two months, he finally began to respond to me when I spoke to him and his behavior drastically improved. This particular student just wanted to feel cared about. This may work for your very challenging student. At least, it's worth a try.